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ABSTRACT

Increase in sex-role knowledge represents an early stage of the development of sex role stereotypes in children, which is followed by a decrease in the extent of sex-role discrimination. This process is related to the acquisition of classificatory skills. Groups of children aged 4-10 years were tested for their sex role stereotypes and classificatory skills. Sex role stereotypes were measured by having subjects assign 38 sex-linked traits, behaviors, and interests of children and adults to one of five categories ranging from extremely feminine to extremely masculine. Seven classification abilities were examined by a set of tasks that required subjects to attend to sex and age of human figure silhouettes. Data analyses of stereotype answers revealed a developmental sequence of an increase of stereotype knowledge accompanied by the tendency to group sex role characteristics into exclusive classes, males or females only. The acquisition of more flexible sex-role stereotypes conceptualizing sex role characteristics as partially common to both sex groups was also noted. The developmental change in sex role stereotyping was closely related to the level of classification ability. The findings support a cognitive developmental theory of sex role development. (Author/DWH)

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# ENTWICKLUNG UND ZUSAMMENHANGSMUSTER VON MERKMALEN DER GESCHLECHTSTYPISIERUNG IM KINDESALTER

Nr. 5 1983/4

## The Development of Sex-Role Stereotypes and Classificatory Skills in Children

H. M. Trautner, W. B. Sahm &
I. Stevermann

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# The Development of Sex-Role Stereotypes and Classificatory Skills in Children

H. M. Trautner, W. B. Sahm &
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This paper is a revised version of the poster presented at the 7th Biennial Meetings of the ISSBD in Munich (FRG), August 1983. The data were gathered within the first investigation of the ongoing longitudinal research project about the development of sex-typing in German children. The research was supported by a grant from the Stiftung Volkswagenwerk to the first author.

For assistance in conducting the study and data analyses, the authors wish to thank Christel Gekeler, Nicole Helbing, Rosemarie Köhler-Ruprecht, Dr. Arnold Lohaus, Michael Pfannenberg, Thomas Saum, Thomas Schauder, Ute Scholz, and Ute Schwalm-von Höne.

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## A B S T R A C T

The present paper proposes that the increase in sex-role knowledge represents only an early stage of the development of sex-role stereotypes in children which is followed by a decrease in the extent of sex-role discrimination, and that this process is related to the acquisition of classificatory skills. 159 boys and 164 girls aged 4 to 10 years were tested for their sex-role stereotypes and classificatory skills. To measure sex-role stereotypes subjects had to assign 38 sex-linked traits, behaviours, and interests of children and adults to one of five categories ranging from extremely feminine to extremely masculine. Seven classification abilities were examined by a set of tasks that required to attend to sex and age of human figure silhouettes. Data analyses of stereotype answers revealed a developmental sequence of 1) an increase of stereotype knowledge accompanied by the tendency to group sex-role characteristics into exclusive classes (males only or females only), 2) the acquisition of more flexible sex-role stereotypes conceptualizing sex-role characteristics as partially common to both sex-groups. The developmental change in sex-role stereotyping was closely related to the level of classification ability. This relationship was maintained with age partialled out. Specifically, multiple classification and reclassification (step 1) resp. distinguishing between 'many' and 'some' and class inclusion (step 2) appeared to be of importance for the development of sex-role stereotypes. The findings support a cognitive-developmental theory of sex-role development.

## PROBLEM

Gender is an obvious and salient human characteristic, highly effective for classifying people. Many traits, behaviours, and attitudes are associated with gender. These sex-linked associations constitute the cultural sex-role stereotypes (D'ANDRADE 1966, BLOCK 1973, EDWARDS & WILLIAMS 1980). Therefore, it is quite understandable that children as young as preschool age have a substantial knowledge of the sex-role stereotypes prevalent in their social environment (THOMPSON 1975, KUHN, NASH & BRUCKEN 1978), and that sex-role knowledge further increases during middle childhood (HARTLEY & HARDESTY 1964, NADELMAN 1974, WILLIAMS, BENNETT & BEST 1975, MASTERS & WILKINSON 1976, BEST et al. 1977, TRAUTNER, STEVERMANN & SAHM 1983, Note 1).

Studies about the development of sex-role stereotypes have focused on age changes in the number of sex-role characteristics correctly identified as masculine or feminine according to given sex-role definitions. Most of these studies utilized forced-choice, dichotomous response designs yielding no information about possible qualitative changes in sex-role concepts. Considering sex-role stereotypes as cognitive schemas (BEM 1981, MARTIN & HALVERSON 1981) or rules (DAMON 1977, TURIEL 1978) that organize and structure information about the sex-role characteristics in the social environment, we expect that children with increasing age recognize that sex-role characteristics, though typical of one gender, are not exclusively linked to males or females, but that there is also differentiation within each gender and commonality of one gender with the other (LEAHY & SHIRK 1980, Note 2).*

In the present paper we propose that the increase in the number of known sex-role characteristics represents only an early stage in the development of sex-role stereotypes, which is followed by the acquisition of more flexible sex-role concepts, i.e., a decrease in the extent of sex-role discrimination.

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*) We wish to thank Dr. Lorraine NADELMAN, University of Michigan, for directing our attention to that study.

From the contention of a structural parallelism between logical and social thought, the development of sex-role concepts should be closely related to general cognitive development (KOHLBERG 1966, DAMON 1977, CARTER & PATTERSON 1982). Since the assignment of behavioural characteristics to gender is a classificatory reaction, we specifically suggest a relationship between classificatory skills and sex-role stereotypes. Classification by gender, at the lowest level, requires the consistent and exhaustive application of the male-female distinction. The acquisition of more flexible sex-role concepts should then be related to more advanced classificatory skills, as distinguishing between 'all', 'many', and 'some', reclassification, multiple classification, and class inclusion.

There exists only one study that examined the relationship between classificatory skills and sex-role stereotypes (LEAHY & SHIRK 1980, Note 2). With six and eight year old children, the authors found a moderate positive correlation between knowledge of sex-trait stereotypes and performance on consistent sorting, and also between the ability to reclassify sex-traits and a Piagetian measure of reclassification. The LEAHY & SHIRK study has several limitations: 1) Sex-role knowledge was defined only as the number of correctly identified traits on a pass or fail criterion; 2) the age range of subjects was rather small (6 and 8 year-olds); 3) only two simple classificatory skills (consistent sorting and reclassification) were tested.

The purpose of the present study was a more thorough analysis of the relationship between the development of sex-role stereotypes and classificatory skills by testing children of a broader age range for a greater number of different classification tasks, and by utilizing a sex-role stereotype measure that yields specific information about quantitative as well as qualitative age changes in sex-role concepts. Two hypotheses were tested: 1) The increase in the knowledge of prevailing sex-role characteristics is only the first step in the development of sex-role stereotypes in children which is followed by a decrease in the extent of sex-role discrimination. 2) The developmental changes in sex-role stereotypes are related to the development of classificatory skills.

## METHOD

### Subjects

Data were collected at 7 kindergartens and 6 elementary schools in the Frankfurt area (FRG). Prior parental consent was obtained in all cases. The final sample consisted of 323 children aged 4 to 10. The number of boys and girls in each age group is provided in Table 1.

Table 1: Number of Children by Sex and Age

| Sex | Age | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 4;0-4;5 | 4;6-5;5 | 5;6-6;5 | 6;6-7;5 | 7;6-8;5 | 8;6-9;5 | 9;6-10;5 | Total |
| Boys | 8 | 25 | 24 | 25 | 25 | 27 | 25 | 159 |
| Girls | 15 | 23 | 26 | 25 | 25 | 25 | 25 | 164 |

### Procedures and Instruments

Each child was individually tested by a trained experimenter of its own sex. A second experimenter of the opposite sex recorded the child's reactions. The order of instruments was as follows:

1a) Sex-Role Stereotype Inventory (children's role)
1b) Sex-Role Stereotype Inventory (adults' role)
2) Classification tasks

### 1. Sex-Role Stereotypes

To measure sex-role stereotypes two lists of short statements on sex-typed traits, behaviours, and interests (half masculine, half feminine) of children (20 items) and of adults (18 items) were used. A sample of items is given in Table 2.

Table 2: Sample Items of the Sex-Role Stereotype Inventories

| There are children who | There are adults who |
|---|---|
| ... like to play with trucks | ... always want to tell others what to do |
| ... are cruel and hurt other children on purpose | ... often are afraid and fear a lot of things |
| ... like to play with necklaces and bracelets | ... repair broken things at home |
| ... like to help mother with her domestic work | ... cook and bake at home |
| Who ... ? | Who ... ? |

Yellow boxes with an opening on top and groups of blue female and/or male human figure silhouettes on front were placed on a table before the child. Childlike silhouettes were used in the children's section, larger adult-like silhouettes in the adults' section. Each box represented a possible answer to the item on a five-point scale.

Children's section: Only girls (8 girls), more girls than boys (6 girls, 2 boys), as many girls as boys (4 girls, 4 boys), more boys than girls (6 boys, 2 girls), only boys (8 boys).

Adults' section: Only women (8 women), more women than men (6 women, 2 men), as many women as men (4 women, 4 men), more men than women (6 men, 2 women), only men (8 men).

Following a detailed explanation of the boxes' function the items were successively read aloud by the experimenter and the child was instructed to answer to each statement by dropping a card into the box which would fit best. Answers were scored on a five-point scale as described in Table 3.

Table 3: Scoring of Stereotype Answers

| Answer | | Scoring | |
|---|---|---|---|
| Children's Section | Adults' Section | Masculine Item | Feminine Item |
| Only girls | Only women | 1 | 5 |
| More girls than boys | More women than men | 2 | 4 |
| As many girls as boys | As many women as men | 3 | 3 |
| More boys than girls | More men than women | 4 | 2 |
| Only boys | Only men | 5 | 1 |

## 2. Classificatory Skills

Based on KOFSKYs (1966) and HOPPE et al. (1977) analysis of the developmental sequence of classificatory skills in children, subjects were given seven classification tasks: 1) Exhaustive sorting, 2) Multiple classification, 3) Horizontal reclassification, 4) Hierarchical classification, 5) Distinguishing 'all' and 'some', 6) Distinguishing 'many' and 'some', 7) Class inclusion.

As materials 16 human figure silhouettes of different body-postures on cardboard pieces (4 women, 4 men, 4 girls, 4 boys, see Figure 1), 4 differently coloured deposit cases, and drawings of a sports-ground and a park were used. Table 4 provides the procedures and the solutions considered correct for the seven classification tasks.

Table 4: Procedures and Correct Solutions of Classification Tasks

| Task | Procedure | Correct Solution |
|---|---|---|
| 1. Exhaustive Sorting | A child's silhouette of the subject's sex is shown and S is asked to pick out all corresponding silhouettes from the 12 (3 men, 3 women, 3 boys, 3 girls) displayed to him. | 3 silhouettes of the same age and the same sex resp. 6 silhouettes of the same age or same sex. |
| 2. Multiple Classification | A deposit case is put on the table labelled by E as 'children's house'. Male (female) Ss are asked if boys (girls) are allowed to go into the house and why. | Assent with indication that boys (girls) are children. |
| 3. Horizontal Reclassification | 12 silhouettes (as in task 1) are put in front of S together with 2 deposit cases. S is asked to sort all the silhouettes into the cases; corresponding ones together. After correct completion of this task (sorting by age or sex), S is asked to rearrange the silhouettes so that again corresponding silhouettes get together. | Second sorting by sex if first by age or vice versa. |

| Task | Procedure | Correct Solution |
|---|---|---|
| 4. Hierarchical Classification | The 12 silhouettes remain in the 2 deposit cases as last arranged by S in task 3. Two more cases are then added and S is asked to sort closely corresponding silhouettes into each of the 4 cases. | 3 silhouettes of the same age and the same sex in each deposit case. |
| 5. Distinguishing 'all' and 'some' | 10 children's silhouettes (5 girls, 5 boys) and the sports-ground- resp. the park-drawing are put in front of S. S is first instructed to make all the boys and some girls got to the sports-ground, then to make all the girls and some boys go to the park. | 5 boys, 2-4 girls (sports-ground), 5 girls, 2-4 boys (park) |
| 6. Distinguishing 'many' and 'some' | Silhouettes of 5 girls and 5 boys are displayed and part of the table is designated for a street. The male (female) S is asked to arrange a meeting of many boys and some girls (many girls and some boys) in the street. | 3 or 4 boys, 2 or 3 girls (male Ss), 3 or 4 girls, 2 or 3 boys (female Ss). |
| 7. Class Inclusion | Silhouettes of 3 boys, 2 girls, 3 men (3 girls, 2 boys, 3 women) are displayed to the male (female) S. The male (female) S is asked two questions: 1) Are there more boys (girls) or more children ? 2) Are there more male (female) persons or more men (women) ? | Verbal answer: 1) More children, 2) More male (female) persons; correct pointing at the respective groups of silhouettes. |

Competence of a classificatory skill was conceded, if the child offered the correct solution to the item in question, or - in case of more than one item per skill (e.g. distinguishing 'all' and 'some') - if at least one of the items given was solved correctly.

Results of McNemar-Tests and a scalogram analysis performed on the data suggested an ordering of the seven skills which led to the distinction of six levels of classificatory skills specified in Table 5.

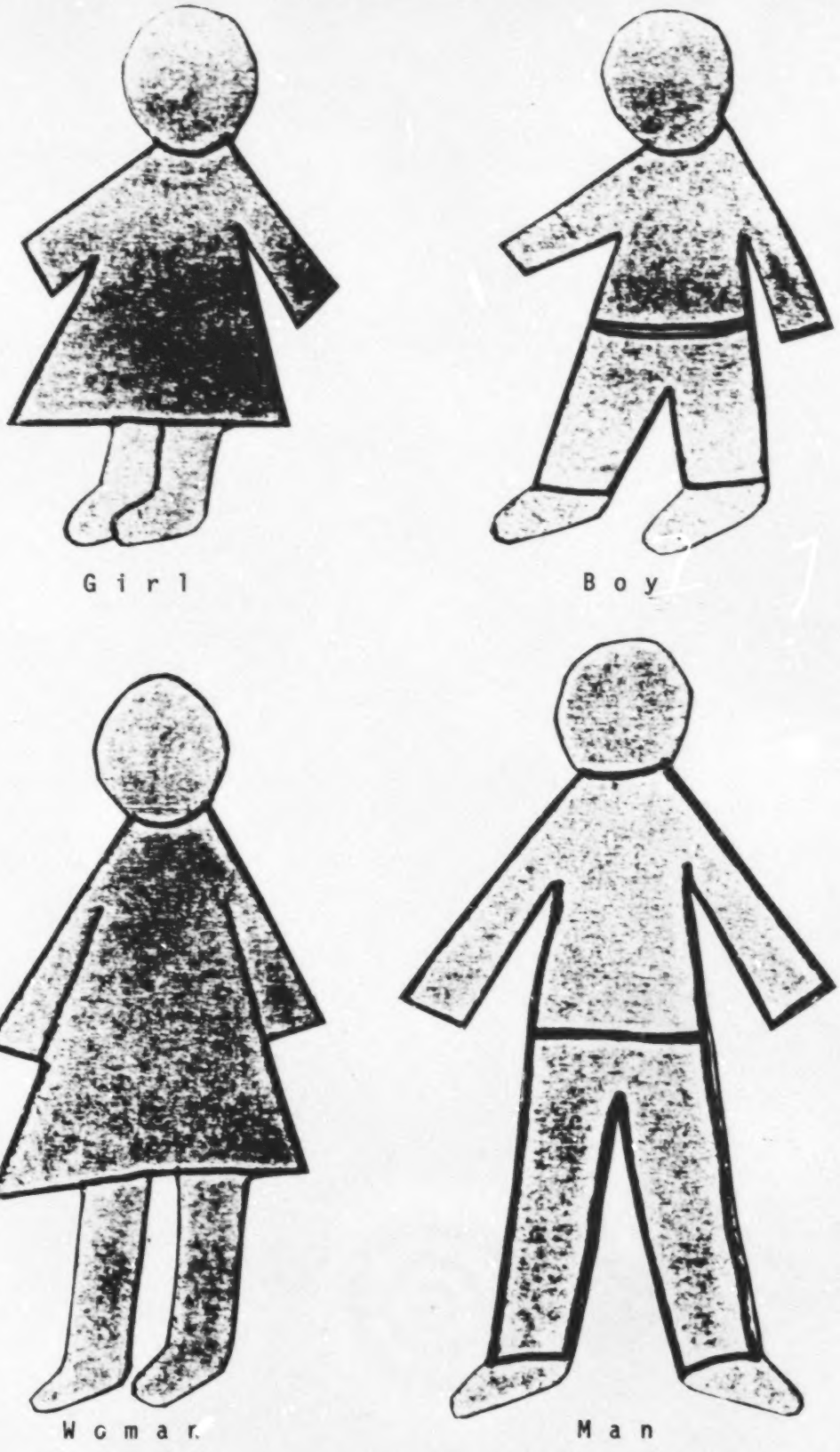


Figure 1: Human Figure Silhouettes Used in Classification Tasks

Table 5: Specification of Six Levels of Classificatory Skills

| Task | Level | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Exhaustive Sorting | + | + | + | + | + | + |
| Distinguishing 'all' and 'some' | - | + | + | + | + | + |
| Multiple Classification | - | - | + | +/- | +/- | +/- |
| Horizontal Reclassification | - | - | + | +/- | +/- | +/- |
| Hierarchical Classification | - | - | +/- | +/- | +/- | +/- |
| Class Inclusion | - | - | - | + | - | + |
| Distinguishing 'many' and 'some' | - | - | - | - | + | + |

\+ = Task solved
\- = Task not solved
+/- = Task solution irrelevant

All remaining patterns of task solutions that do not conform to any of the above specified levels of classificatory skills were labelled as 'miscellaneous'.

## RESULTS

The proportion of answers to the 38 items of children's and adults' sex-role characteristics on the used five-point scale (with scores 1 and 2 pooled) for boys and girls of different ages is given in Figure 2.

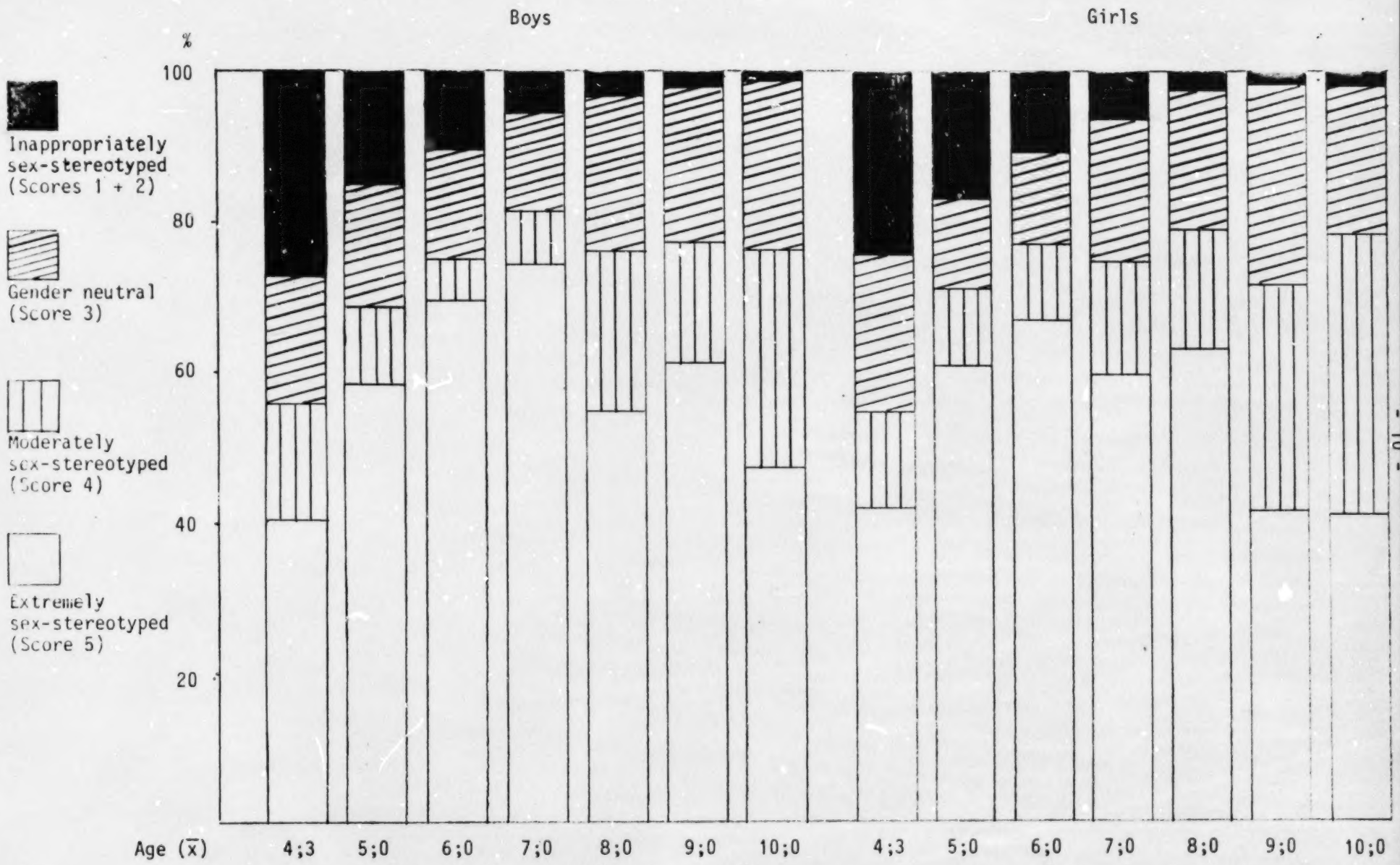


Figure 2: Proportion of Answers to 38 Items on Children's and Adults' Sex-Role Characteristics by Sex and Age of Child

The analysis of the data pattern as shown in Figure 2 suggested the distinction of three levels of sex-role stereotyping: 1) Little sex-role knowledge, 2) High sex-role knowledge with rigid sex-role stereotypes, 3) High sex-role knowledge with flexible sex-role stereotypes. The definition of each level is given in Table 6.

Table 6: Definition of Three Levels of Sex-Role Stereotyping (SRS-Level)

| SRS-Level | Criteria of Definition |
|---|---|
| 1 = Little sex-role knowledge | Scores 1+2 $\geq$ 4 items; scores 4+5 $\leq$ 25 items |
| 2 = High sex-role knowledge with rigid sex-role stereotypes | Scores 1+2 $\leq$ 3 items; scores 4+5 $\geq$ 26 items; proportion 4/4+5 $\leq$ .15 |
| 3 = High sex-role knowledge with flexible sex-role stereotypes | Scores 1+2 $\leq$ 3 items; scores 4+5 $\geq$ 26 items; proportion 4/4+5 $>$ .15 |

247 of the 323 children could be classified according to the criteria given above. The mean proportion of the three SRS-levels for each of three age-ranges (4-6 years, 7-8 years, 9-10 years) is provided in Figure 3. (Since the 76 subjects not fulfilling the criteria for any of the three SRS-levels are not depicted in Figure 3, proportions per age-group add up to less than 100 %.)

Figure 3 shows that the relative frequencies of the three SRS-levels differ remarkably over age. The correlation between age (in months) and SRS-level is $r = .69$ ($p < .001$). Children with little sex-role knowledge (less than 2/3 of sex-role characteristics correctly classified) are only found in kindergarten age. While children with rigid sex-role stereotypes are present during the whole age range studied, though less so after 8 years of age, flexible sex-role stereotypes do not emerge before elementary school age, and show a further increase at the end of this age period, thus, corroborating our first hypothesis.

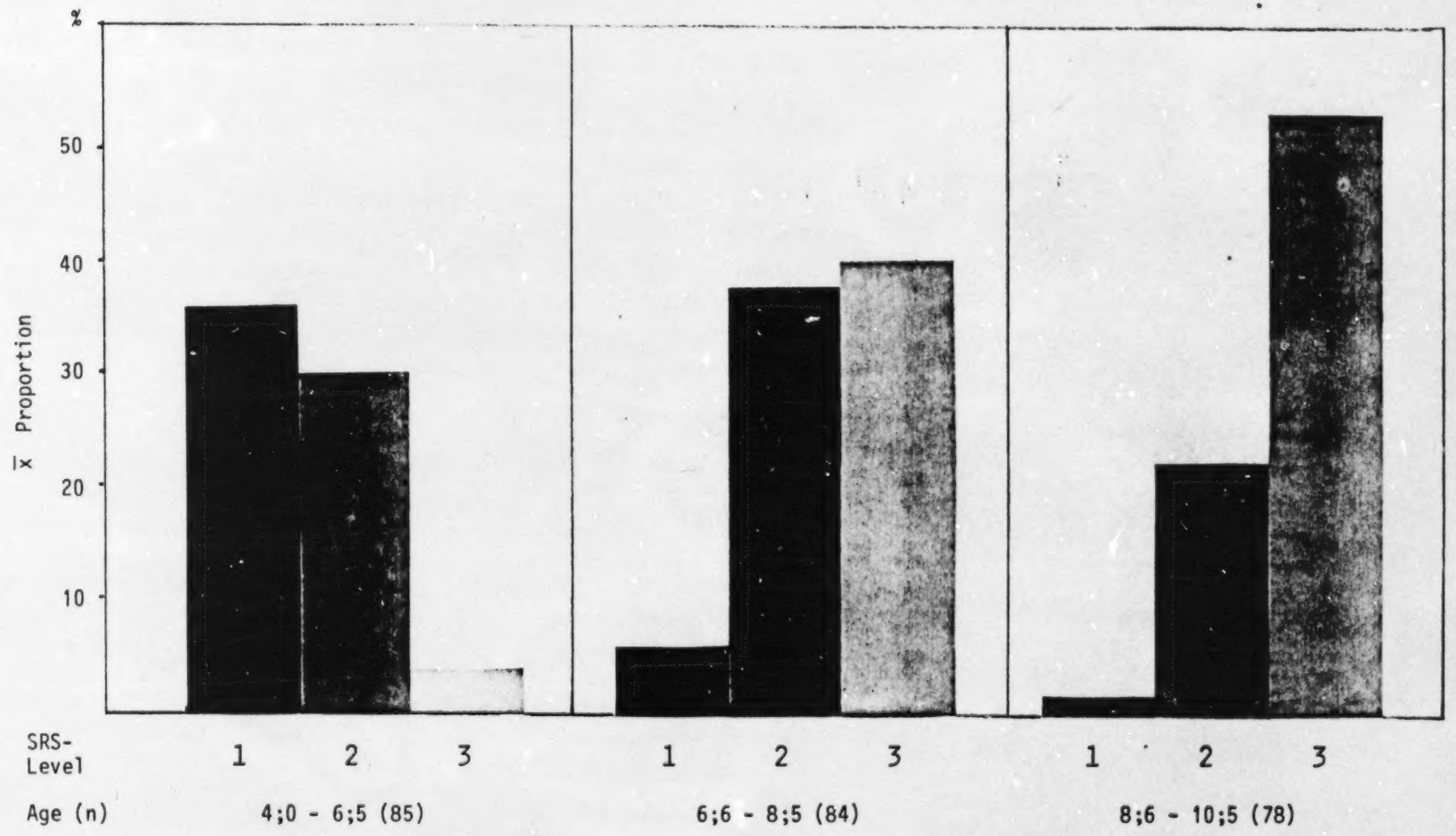


Figure 3: Proportion of Three Developmental Levels of Sex-Role Stereotyping (SRS-Level) in Different Age-Groups

To test our second hypothesis that the developmental changes in sex-role stereotypes are related to the development of classificatory skills, for each level of classification skills proportions of the three levels of sex-role stereotyping were computed. The findings are provided in Figure 4.

Figure 4 shows that the number of subjects with SRS-level 1 significantly drops with the emergence of the classificatory skills of distinguishing between 'all' and 'some' (from CS-level 1 to CS-level 2), multiple classification and reclassification (from CS-level 2 to CS-level 3). Rigid stereotyping is found with subjects reaching a lower as well as a more advanced level of classificatory skills (CS-levels 2-6), while flexible sex-role stereotypes emerge after at least some of the advanced classificatory skills are present (CS-levels 3-5), and dominate only after the acquisition of the most advanced classificatory skills (CS-level 6).

The correlation (Pearson r) between CS-level and SRS-level is $r = .56$ ($p < .001$). By partialling out the age variable, the correlation is reduced to $r = .31$ ($p < .001$).

## DISCUSSION

The results of the present study indicate that the development of sex-role stereotypes in children not only comprises an increase in the number of known sex-role characteristics but also a decrease in the extent of sex-role discrimination, and that these developmental changes are related to the acquisition of classificatory skills.

Our data suggest that the finding of a linear increase in sex-role knowledge during middle-childhood, observed in previous studies, is determined by the employment of a forced-choice format, asking subjects to attribute sex-role characteristics to only males or only females. This leads to an overestimation of the sex-role discrimination actually perceived by the subjects, especially with older children. Using a measure of sex-role stereotypes that provides also the options of moderately sex-typed and gender neutral answers, we found three sequential levels

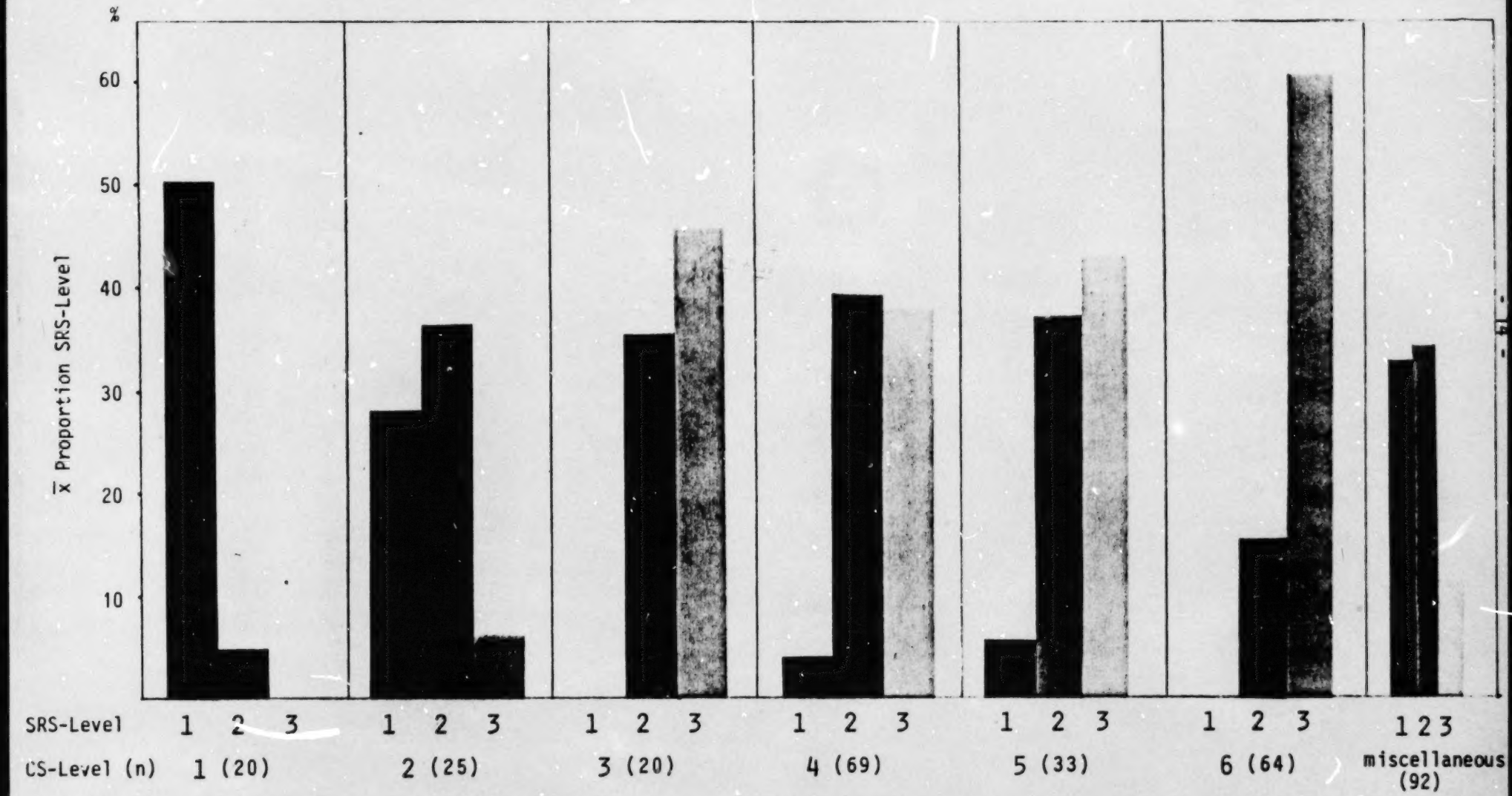


Figure 4: Proportion of Three Developmental Levels of Sex-Role Stereotyping (SRS-Level) by Level of Classification Skills (CS-Level)

of sex-role stereotyping in children aged 4 to 10: 1) Little stereotype knowledge; 2) High stereotype knowledge with rigid stereotyping; 3) High stereotype knowledge with more flexible stereotypes. There was a strong relationship between age and level of sex-role stereotyping. The observed decline of rigid stereotyping over age corroborates the findings of GARRETT, EIN & TREMAINE (1977) and LEAHY & SHIRK (1980, Note 2).

The found curvilinear relation between age and frequency of moderately sex-typed resp. gender neutral answers indicates a qualitative change in the meaning of these answers. While for younger children, they may reflect uncertainty about the correct assignment of a characteristic to gender, for older children the same answers seem to represent a more realistic conception of the actual extent of sex-role discrimination.

It is not to be ruled out, that the age means in stereotype scores might well be different from those reported here, especially that an increase in the number of known sex-role characteristics could be observed also during elementary school years, if different items were used. Yet, in our opinion, this would not change the found developmental sequence of first acquiring stereotype knowledge and then becoming more flexible in sex-role stereotyping.

As predicted, there was a positive relationship between the development of sex-role stereotypes and classificatory skills. This relationship was maintained with age partialled out. Theoretically, the development of classificatory skills should be closer related to the acquisition of more flexible stereotypes than to the increase in sex-role knowledge. Especially, rigid stereotyping is not in accordance with advanced classificatory skills.

A detailed analysis of the correspondence between levels of classificatory skills and levels of sex-role stereotyping revealed that flexible sex-role stereotypes prevail not until the most advanced classificatory skills (distinguishing between 'many' and 'some' and class inclusion) have been acquired. On the other hand, a substantial proportion of rigid stereotyping can still be observed, although advanced classificatory skills (multiple classification and reclassification) are present. Thus, advanced

classificatory skills seem to be a prerequisite for flexible sex-role conceptions, but they do not exclude rigid stereotyping, probably sustained by social factors such as modeling or reinforcement. Further, the decline of stereotype-level 1 with the emergence of distinguishing between 'all' and 'some', multiple classification, and reclassification suggests that the knowledge aspect of sex-role stereotypes is also not independent of classificatory skills.

In conclusion, the results of our study support a cognitive-developmental theory of sex-role development. Children's development of sex-role stereotypes appears to be closely related to classificatory skills. Further studies about the development of sex-role stereotypes should consider qualitative changes in sex-role stereotyping and their dependence on the acquisition of classificatory skills.

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